

Claims

1. Vehicle with bumper (12) which is attached to the vehicle transverse to the longitudinal direction (x) of the vehicle via at least one deformation element (10), whereby the deformation element (10) exhibits two first side walls (28, 30) that are spaced apart, and are joined together via two second side walls (40, 42) that are spaced apart, where the first and second side walls (28, 30; 40, 42) feature first and second grooves (48a,b, 50a,b; 52a,b, 54a,b) that run trans-verse to the longitudinal direction (x) of the vehicle and are arranged in pairs opposite each other, each in a common plane,
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characterised in that,

the first grooves (48a,b, 50a,b) extend over the whole breadth of the first side walls (28, 30) and the second grooves (52a,b, 54a,b) extend over only a middle part of the second side walls (40,42), leaving a region of dimension (a) free at both edges, whereby the first grooves (48a,b, 50a,b) are arranged in pairs in first planes (E₄₈, E₅₀) and the second grooves (52a,b, 54a,b) are arranged in pairs in second planes (E₅₂, E₅₄) situated between two subsequent first planes.
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2. Vehicle according to claim 1, characterised in that the first and/or second side walls (28, 30;40,42) are inclined, running in pairs towards each other in the longitudinal direction (x) of the vehicle.
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3. Vehicle according to claim 1 or 2, characterised in that the second side walls (40,42) are joined together at their end facing the bumper (12) via a strut (44) running transverse to the longitudinal direction (x) of the vehicle.
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4. Vehicle according to claim 3, characterised in that the strut (44) exhibits an opening (64) and a tube-shaped part (58) which penetrates the opening (64) and is attached to an insert (62) that rests against the inside of the second side walls (40,42) and strut (44) and is fixed to the second side walls (40,42) and/or strut (44), whereby the tube-shaped part (58) features an inner thread (60) for releasably screwing in a towing hook.
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5. Vehicle according to one of the claims 1 to 4, characterised in that the first and/or the second side walls (28, 30; 40, 42) are bent outwards at their ends remote from the bumper (12) in the form of a flange (32, 34) to form an integral attachment plate, while forming an edge (70).
- 5 6. Vehicle according to claim 5, characterised in that stiffening grooves (72) run transverse to the edges (70) formed by bending the sheet.
- 10 7. Vehicle according to one of the claims 1 to 6, characterised in that bent connecting strips (46) on the second side walls (40, 42) lie against the inside of the first side walls (28, 30) and the second side walls (40, 42) are joined to these via the bent connecting strips (46).
- 15 8. Vehicle according to one of the claims 1 to 7, characterised in that, for the purpose of attaching the bumper (12), the first side walls (28, 30) feature attachment projections (36) at the end facing the bumper (12).
- 20 9. Vehicle according to one of the claims 1 to 8, characterised in that at least one pair of the first grooves (48, 50) situated in the region of the first side walls (28, 30) remote from the bumper (12) is pressed flat at the edges.
10. Vehicle according to one of the claims 1 to 9, characterised in that the deformation element 10 is made of steel sheet.
- 25 11. Vehicle according to one of the claims 1 to 10, characterised in that the bumper (12) is a section made of an aluminium alloy.